



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

3 12 0038

VIA TELEFAX

REF: 4WD-SSRB

Mr. James C. Brown  
Manager, Environmental Affairs Department  
Olin Corporation  
Post Office Box 248  
Charleston, Tennessee 37310

RE: Olin Corp./McIntosh Plant Superfund Site  
Exposure Assessment Technical Memorandum

Dear Mr. Brown:

Please find enclosed comments on the Exposure Assessment Technical Memorandum (TM) for the Olin Corp./McIntosh, Alabama Superfund site. Please provide a line-by-line response to each comment on or before close of business on September 9, 1992. EPA's approval will be determined upon receipt of your response. If approved, a Revised TM is not required. Incorporate all changes into the Baseline Risk Assessment which is due on December 7, 1992.

If there are any concerns that will preclude your meeting the above deadline, please feel free to give me a call at (404)347-2643.

Sincerely,

A handwritten signature in cursive script, appearing to read "Cheryl W. Smith", is written over the typed name.

Cheryl W. Smith  
Remedial Project Manager  
South Superfund Remedial Branch

Enclosure

cc: Toni Odom, Olin Corp. (w/enclosure)  
Rachel S. Cochran, PRC (w/enclosure)  
Joe Downey, ADEM, (w/enclosure)

TECHNICAL REVIEW COMMENTS ON THE  
EXPOSURE ASSESSMENT TECHNICAL MEMORANDUM  
OLIN CORPORATION, MCINTOSH PLANT  
MCINTOSH, ALABAMA

General Comments

1. The exposure assessment also should evaluate the potential health effects due to inhalation of volatile contaminants from groundwater and surface water.
2. The report states that the risk to the current and future industrial workers at the facility was not evaluated because a well-managed health and safety plan will be implemented. It is not appropriate to make this assumption because protective health and safety plans may not be in place, administered, or adhered to. Therefore, current and future industrial workers at the facility must be evaluated.
3. A major data gap exist due to the lack of data from surface soil sampling. Therefore, depending on Phase III surface soil sampling results, the exposure assessment could be incomplete because it does not evaluate any potential exposures to surface soil or windblown dusts. The baseline risk assessment should determine which complete exposure pathways are significant. The decision that a complete pathway is insignificant should not be made this early in the risk assessment process. The baseline risk assessment should quantify all complete exposure pathways. Figures 4 and 5, and the associated text (Section 4) should be revised to reflect that all complete exposure pathways will be quantified in the baseline risk assessment.
4. A future onsite residential scenario should be included in the exposure assessment. The potential exists for parts of the site to become residential due to the close proximity to residential areas shown on Figure 1. Risk information for future onsite residential pathways should be included in the baseline risk assessment to aid in making risk management decisions. This may or may not be the basis for remedial action at this site. However, all potential exposure pathways should be presented in the baseline risk assessment.
5. "Supplemental Guidance to RAGS: Calculating the Concentration Term" (OSWER Pub. 9285.7-081, May 1992) should be consulted regarding the appropriate calculation of the concentration term. The method presented in this exposure assessment is for normally distributed sample sets. EPA's experience shows that most environmental contaminant data sets are lognormally distributed rather than normally distributed.

6. Highlight 5 in the supplemental guidance shows the equation for calculating the UCL for lognormally distributed sample sets. Also, it is inappropriate to use the geometric mean as indicated in Section 5.0; the following two sentences should be removed from the document: "A more realistic approach may be to use the geometric average in cases where environmental data may be skewed resulting in overestimation of risks. For the baseline risk assessment, a statistical distribution analyses of the data may be conducted which may result in the use of the geometric, rather than the arithmetic, mean to be used for risk/hazard number calculations." The exposure point concentrations for the RME and average scenarios should be the lognormal 95% upper confidence limit.
7. The soil ingestion pathway should be quantitated for current trespasser and future residents. It may be necessary to collect additional surface soil data (should be included in the Phase III sampling effort) to evaluate this pathway. For risk assessment purposes EPA Region IV considers the top foot of soil as surface soil. The inhalation pathway should be considered for current onsite workers and offsite residents, due to their close proximity, as well as future onsite residents. The baseline risk assessment is not concerned with future remedial workers. However, plant worker exposures should be considered in the baseline risk assessment for exposures to contaminants not part of their regular working environment.
8. The average scenarios should be included in an appendix and not in the body of the risk assessment since it is not used for remedial decision making. Risk decisions are based on reasonable maximum exposures. The NCP states "During the development and analysis of alternatives, the risks associated with potential alternatives, both during implementation and following completion of remedial action, are assessed, based on the reasonable maximum exposure assumptions and any other controls necessary to ensure that exposure levels are protective and can be attained" (FR Vol. 55, No. 45, page 8712).
9. The baseline risk assessment does not consider subchronic exposures. Therefore, the information on subchronic exposures should be eliminated from Appendix D. The headings in Appendix D should be changed to reflect that daily intake is presented in this appendix and not carcinogenic risks or hazard indices.
10. The "fraction contaminated" term used for the reasonable maximum exposure scenario is not appropriate; 0.2 should be replaced with 1.0 to reflect the possible contact of a contaminated area for all of the assumed onsite days.

11. "Dermal Exposure Assessment: Principles and Applications" (EPA/600/8-91/011B, January 1992) should be used to determine compound specific dermal permeability constants. The default dermal permeability constant (0.0008 cm/hr) cited on page 30 and Table 7 has been updated. In the absence of a compound specific permeability constant the default for water (0.001 cm/hr) should be used.

#### Specific Comments

1. Executive Summary, Page ES-1, Last Bullet. Language should be added stating that the DDT compounds will be addressed in the Baseline Risk Assessment even though Olin never produced and/or handled these compounds.
2. Section 2.1.2.2, Page 6, Paragraph 1. Identify whether the culverts were lined from inception of plant activities and whether all storm water runoff was cycled through these culverts and subsequently to the NPDES discharge point.
3. Section 2.1.2.2, Page 6, Paragraph 2. Identify if confirmatory sampling has been performed in this area. If so, provide data. If not, provide rationale for not performing sampling activities in this area.
4. Section 2.1.2.2, Page 6, Paragraph 3. Provide information to justify the statement made in the last sentence.
5. Section 2.2, Page 10, last bullet. The text states that "most of the fish consumed by local residents comes from areas besides the basin." While this may be true, the exposure assessment should consider the possibility that contamination from the basin may reach the Tombigbee River.
6. Section 3.0, Page 12, OU-1 Offsite Groundwater Sampling. The last two sentences appear to contradict each other. The first sentence lists all of the analyses performed on the samples but the last sentence states that "the TCL volatile organics were selected as the organic analytes. . ." The text should clearly state which analyses were performed.
7. Section 4.3, Page 17, Paragraph 1. The last two sentences read as follows: "However, a well managed health and safety plan implemented for current and future industrial workers would eliminate the potential for dermal exposure to groundwater from monitoring wells at OU-1. Therefore, current and future industrial workers were not quantitatively addressed in this exposure assessment." This is not correct to

assume an action (that is, implementation of a Health and Safety Plan) in the baseline risk assessment. In addition, the exposure assessment also does not address the potential for current worker exposure to contaminated water from production wells. Therefore, current and future industrial workers at the facility must be evaluated.

8. Section 4.3.2, Page 18, Paragraph 1. Insufficient rationale is provided to exclude the plant workers from the exposure assessment evaluation by assuming adherence to a properly administered health and safety plan. Plant workers should be included in the Baseline Risk Assessment.
9. Section 4.3.3, Page 18, Paragraph 1. The Hypothetical Receptor Populations section should address potential exposure to contaminated process water or water from production wells.
10. Section 4.4, Page 19, Paragraph 2. Domestic well water also would be used for bathing and showering in homes, and inhalation of and dermal contact with volatile organic compounds during showering could be a significant pathway. It should be addressed in the exposure assessment.
11. Section 4.5, Page 20, Paragraph 1. The fifth sentence states that "inhalation of volatile organic compounds at the site was not considered to be a significant exposure pathway," and goes on to state that the reasons for this are low concentrations of volatile organic compounds and dilution factors. The report should be more specific about what these dilution factors are and how low the concentrations are. The Baseline Risk Assessment should determine the significance of this exposure pathway.
12. Section 4.7, Page 21, Paragraph 2. A rationale should be provided for the first sentence: "Direct contact exposure to surface soils from OU-1 (dermal and ingestion) by current and future industrial workers and future remediation workers is considered a complete exposure pathway but is not considered significant." The report should explain specifically why this is not considered significant. The Baseline Risk Assessment should determine the significance of this exposure pathway.
13. Section 4.7, Page 22, Paragraph 2. The fourth sentence states that "Inhalation of constituents from groundwater is believed to be negligible at this site."

This sentence should be substantiated. The Baseline Risk Assessment should determine the significance of this exposure pathway.

14. Section 4.7, Page 22, Paragraph 3. The third sentence which states "However, due to the likelihood that such exposures would be minimal" is highly speculative because there is very limited data to support this statement. The Baseline Risk Assessment should determine the significance of this exposure pathway.
15. Section 5.0, Page 25, Paragraph 2. The arithmetic versus a geometric mean should be utilized.
16. Section 6.1, Page 27, Paragraph 3. The second sentence correctly defines the term "reasonable maximum exposure (RME)." The third sentence incorrectly states that "the RME represents the 90th percentile exposure, that is, the exposure expected to occur in 1 of every 10 exposed individuals." This third sentence should be deleted, because EPA did not attempt to define "RME" statistically or quantitatively.
17. Section 6.2, Page 28, Paragraph 6. The last sentence describes body surface area exposed by remediation workers as 8 percent of the total body surface area, or the head. Hands, and possibly arms, also should be included as likely to be exposed during part of the year.
18. Section 6.2, Page 29, Paragraph 2. Remedial workers should not be included in the Baseline Risk Assessment.
19. Section 6.2, Page 30, Paragraph 2. It is not clear where the factor 0.68 was obtained to calculate the fraction of fish consumed from the contaminated source. The text states that a fraction ingested (FI) of 20 percent was estimated by multiplying 33 percent (fishing time spent in the river) by 0.68. The report should explain how the factor of 0.68 was obtained. FI should be 1.0.
20. Section 6.2, Page 29, Paragraph 5. This discussion of how fish consumption rates were calculated is not straightforward, especially with respect to the discussion regarding weights to responses. For example, the meaning of the following sentence is vague: "This calculation was performed by assigning 365, 52, 12, 24, and 4 to daily, weekly, monthly, biweekly, and occasional responses, respectively, for fish consumption obtained from the demographic analysis." The report must clearly explain how these fish consumption rates were derived.

21. Section 6.2, Page 30, Paragraph 3. Organic contaminants in groundwater should be evaluated using the interim dermal guidance (EPA 1992), not by assuming that each chemical has the same permeability constant as water.
22. Section 6.2, Page 31, Paragraph 2. The matrix effect factor of 0.5, which is used by WCC in all soil and fish exposure calculations, is inappropriate. Almost all reference doses and slope factors are developed for administered doses, or intakes, not absorbed doses. In many of the studies used to develop reference doses and slope factors the compounds are administered to animals in food. In these cases, the matrix effect is already factored into the reference dose or slope factor. A matrix effect factor may be appropriate to use when evaluating the bioavailability of contaminants from soil, but this should be determined on a chemical-specific basis.
23. Section 8.0, Page 33, Paragraph 2. The correct terminology for CLP is contract laboratory program, not "Contract Laboratory Procedures."